

# Work Order ID 57547

April 8, 2010 9:20:32 AM



Page 1

Item ID: D3204-1

Accept



Setup Start



Revision ID:

Stop



Item Name: Tube

Start Date: 4/08/10 Start Qty: 8.00



Cust Item ID:

Required Date: 4/15/10 Req'd Qty: 8.00



Customer:

Reference:

*10.04.08*

Approvals:

Process Plan:

Date:

Tooling:

Date:

Run Start



QC:

Date:

SPC (Y/N):

Date:

Stop



Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Draw Number	Draw Rev.	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
Draw Nbr	Revision Nbr								
D3204	Rev A1								

100

0.00



Hardinge CNC LATHE SMALL

Hardinge

Memo

0.00

Hardinge CNC Lathe Small

1-Turn tube as per Folio FA356 and Dwg D3204-2-Deburr

*SL 10/04/13*

110

0.00



QC2- Inspect parts off machine FAI/FAIB

QC

Memo

0.00

Quality Control

*SL 10/04/13*

120

0.00



QC8- Inspect parts - second check

QC

Memo

0.00

Quality Control

*SL 10/04/13*

*12*

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

**Work Order ID 57547**

Page 2

April 8, 2010 9:20:33 AM

Item ID: D3204-1

Accept



Setup Start



Revision ID:

Stop



Item Name: Tube

Start Date: 4/08/10

Start Qty: 8.00



Cust Item ID:

Required Date: 4/15/10

Req'd Qty: 8.00



Customer:

Reference:

Run Start



Approvals:

Process Plan: \_\_\_\_\_

Date: \_\_\_\_\_

Tooling: \_\_\_\_\_

Date: \_\_\_\_\_

Stop



QC: \_\_\_\_\_

Date: \_\_\_\_\_

SPC (Y/N): \_\_\_\_\_

Date: \_\_\_\_\_

Sequence ID/  
Work Center IDOperation  
DescriptionSet Up/  
Run HoursDraw  
NumberDraw  
Rev.Plan  
CodeAccept  
QtyReject  
QtyReject  
NumberInsp.  
Stamp

130

Identify as per dwg &amp; Stock Location: \_\_\_\_\_

0.00



Packaging

Memo

WA 20

0.00

(8)

Cpl 10.04.13

Packaging

140

QC21- Final Inspection - Work Order Release

0.00



QC

Memo

0.00

Quality Control

10/04/14 DJ

PS 10-4-23

(8)

# Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries

# Picklist Print

April 8, 2010 9:20:32 AM

Page 1

Work Order ID: 57547

Parent Item: D3204-1

Parent Item Name: Tube


Comments: IPP: ☐B04.06.09☐Change Step 6; remove Steps 7 & 8☐KJ/RF☐

Start Date: 4/08/10

Required Date: 4/15/10

Start Qty: 8.00

Required Qty: 8.00

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Remaining Qty To Pick	Qty Issued	Date Issued	Status
M6061T6T0.750W.125		Purchased	No			100	f	15.6250	4.3789			
												
6061-T6 RD Tube .750 x .125W												

Warehouse

Loc Qty

Loc Code

Location

Main Warehouse

MAT

15.625

111409

15.625

4.4 JL 10/04/13

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: \_\_\_\_\_ PAR #: \_\_\_\_\_ Fault Category: \_\_\_\_\_ NCR: Yes No DQA: \_\_\_\_\_ Date: \_\_\_\_\_

Resolution: \_\_\_\_\_ Disposition: \_\_\_\_\_ QA: N/C Closed: \_\_\_\_\_ Date: \_\_\_\_\_

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

**NOTE:** Date & initial all entries





## Lean principle

To be able to produce exactly:

- **what is required**
- **when it is required**
- **the quantity required**

by the next step in the process.

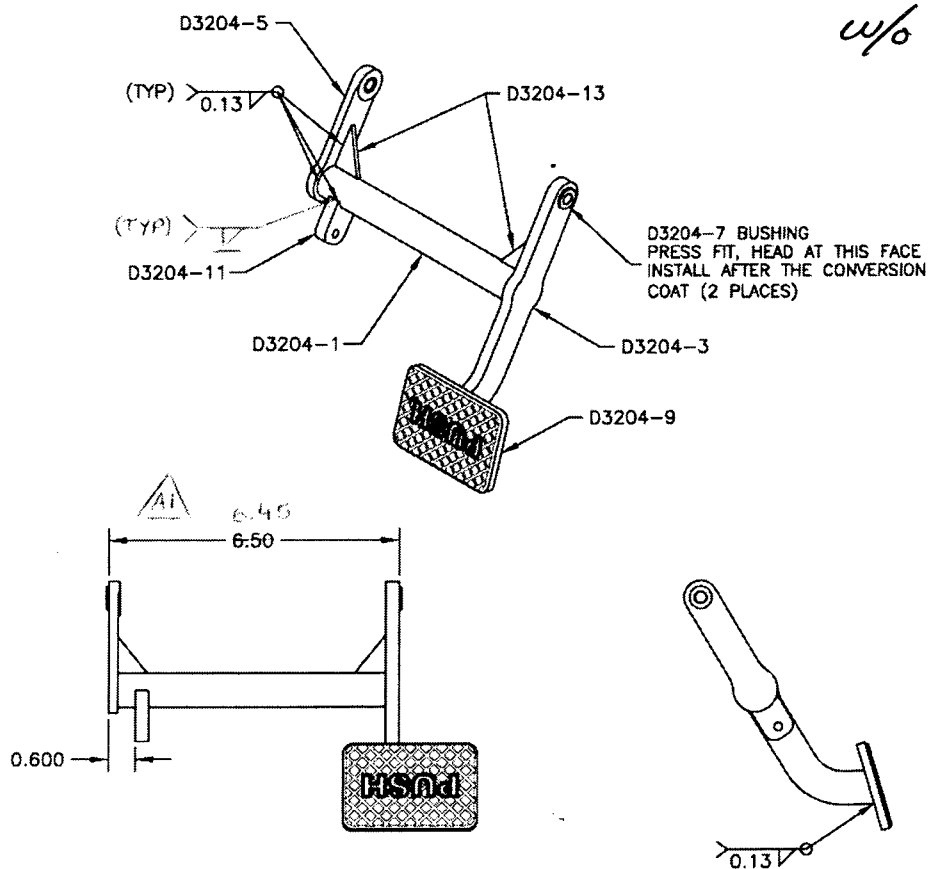
**Once a job started, it should ideally never stop**





DESIGN 4	DRAWN BY H	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED H	APPROVED H	DRAWING NO. D3204	REV. A SHEET 1 OF 3
DATE 04.01.27		TITLE RELEASE PEDAL ASSEMBLY	SCALE NTS
A	04.01.27	NEW ISSUE	
AI	H	03 07.15 0.45 WAS 1.50	

RELEASED  
11/04/30



### D3204-041 RELEASE PEDAL ASSEMBLY

#### NOTES

- 1) BREAK ALL SHARP EDGES 0.005 TO 0.015
- 2) MATERIAL: 6061-T6 OR -T62 (QQ-A-200/8) 0.750 OD x 0.125 WALL (M6061T6T0.75W.125)
- 3) MATERIAL: 6061-T6 (QQ-A-200/8 OR QQ-A-250/11 OR QQ-A-225/8) BAR (M6061T6B)
- 4) MATERIAL: AISI 303 SS (M303R)
- 5) MATERIAL: 6061 (QQ-A-250/11) SHEET 0.125 THICK (M6061T6S.125)
- 6) ENGRAVE "PUSH" USING 0.5" HIGH LETTERS TO DEPTH OF 0.010 TO 0.020  
ENGRAVE DART P/N USING 0.125 LETTERS TO MAX DEPTH OF 0.010
- 7) WELD ASSEMBLY PER QSI 004
- 8) CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
- 9) POWDER COAT ASSEMBLY GREY SANDTEX (REF. 4.3.5.6) PER QSI 005 4.3
- 10) TOLERANCES ARE PER DART QSI 018 UNLESS OTHERWISE NOTED
- 11) ALL DIMENSIONS ARE INCHES

Copyright © 2004 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

## Value stream mapping

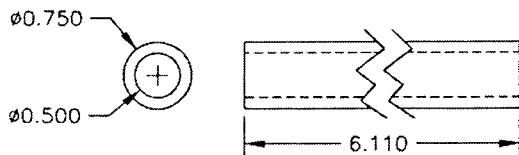
- Value stream mapping is **the best way to identify where the high payoff** opportunities are, yet value stream mapping is the lean tool most likely to **not be used by** companies doing pretend lean!



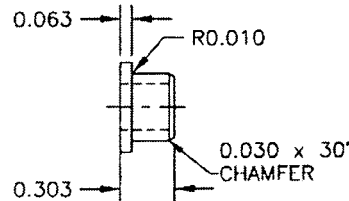
DESIGN 	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D3204	REV. A SHEET 2 OF 3
DATE 04.01.27		TITLE RELEASE PEDAL ASSEMBLY	SCALE NTS

RELEASED  
04.04.05 #

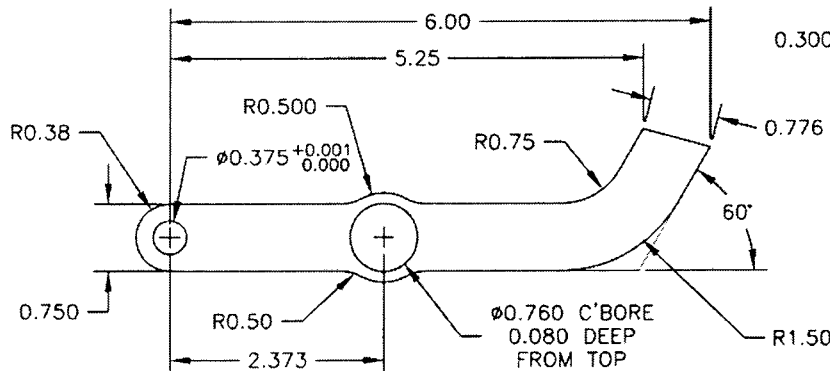
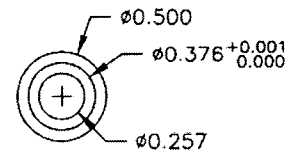
w/o 57547



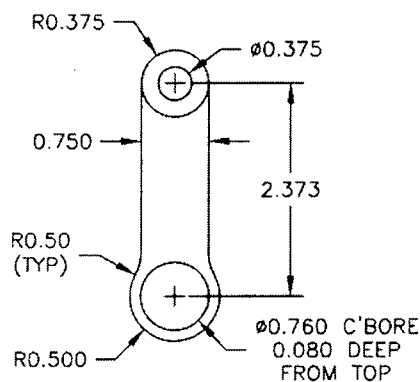
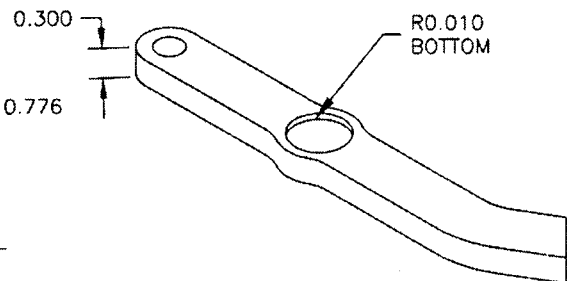
2 D3204-1 TUBE  
SCALE 1:2



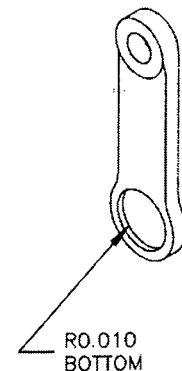
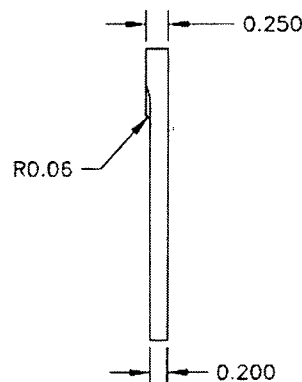
4 D3204-7 BUSHING  
SCALE 1:1



3 D3204-3 ARM  
SCALE 1:2



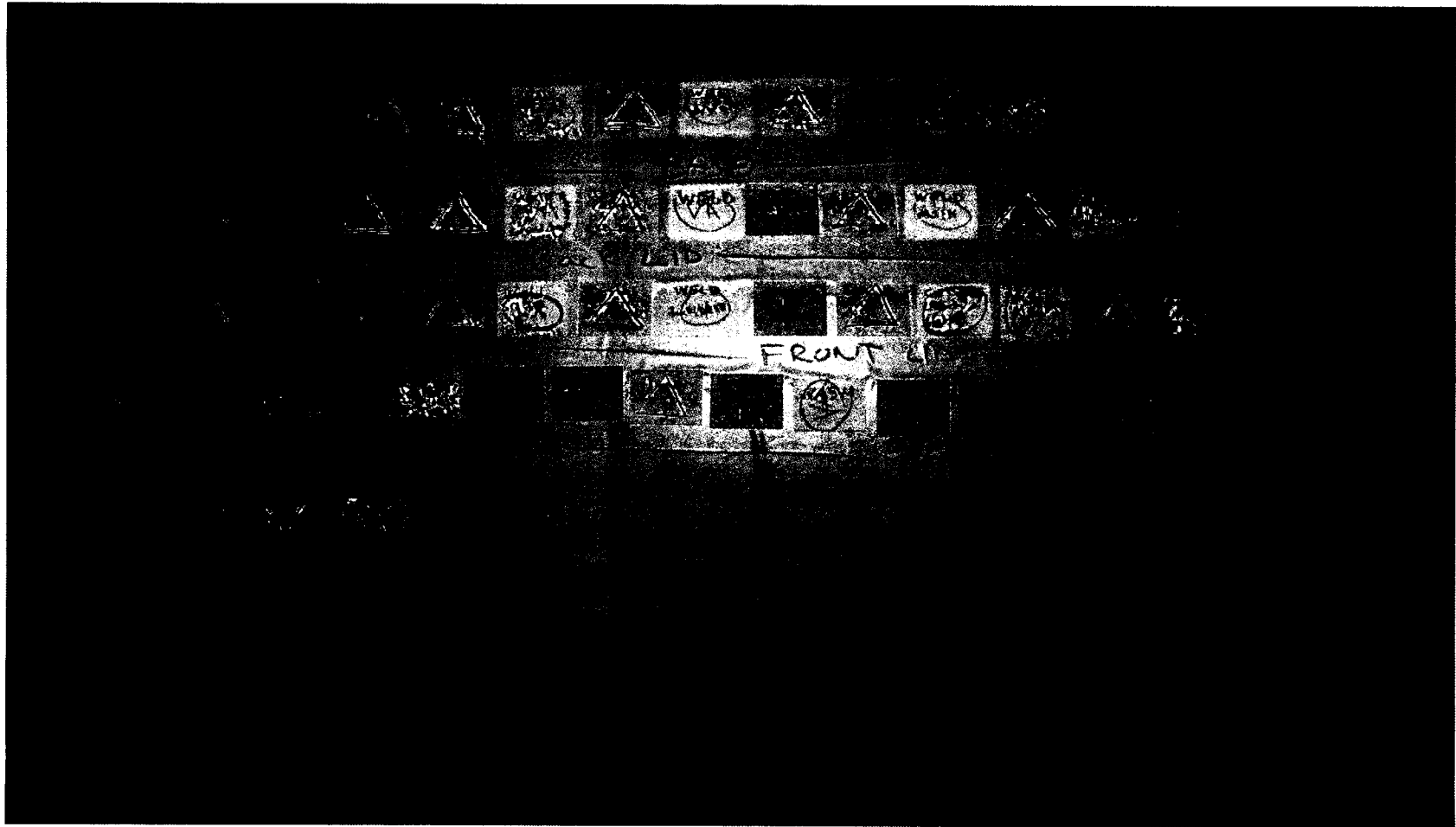
3 D3204-5 ARM  
SCALE 1:2



Copyright © 2004 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.

# Value stream mapping during Kaizen event.

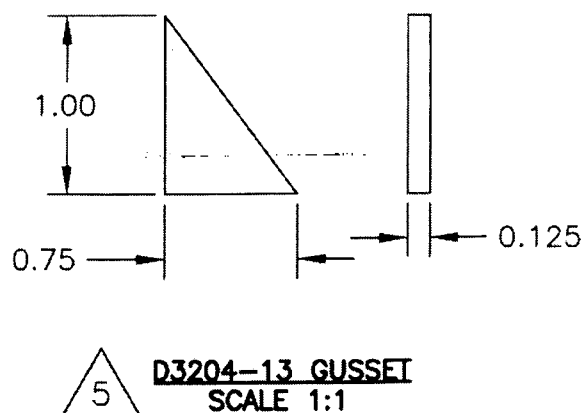
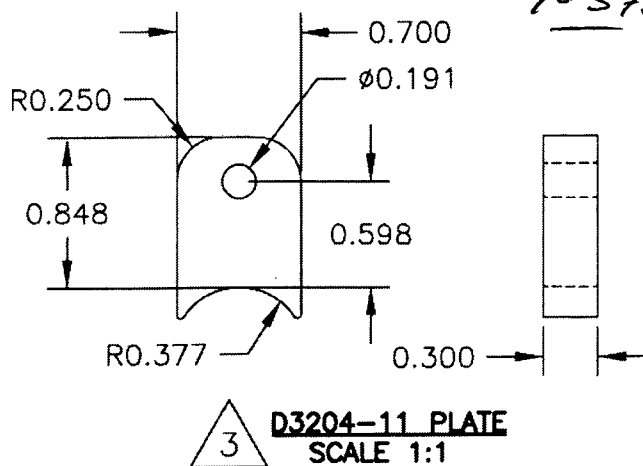
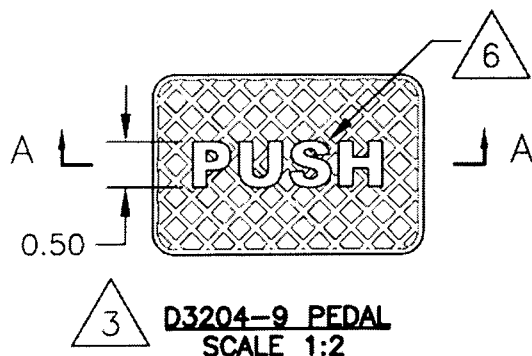
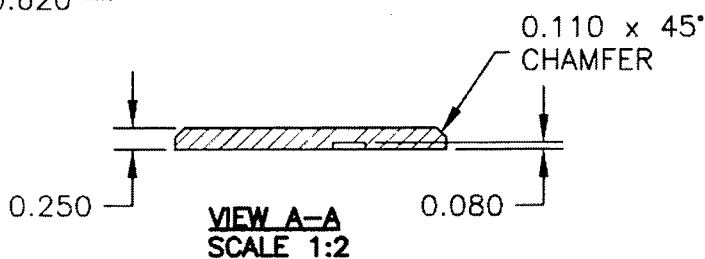
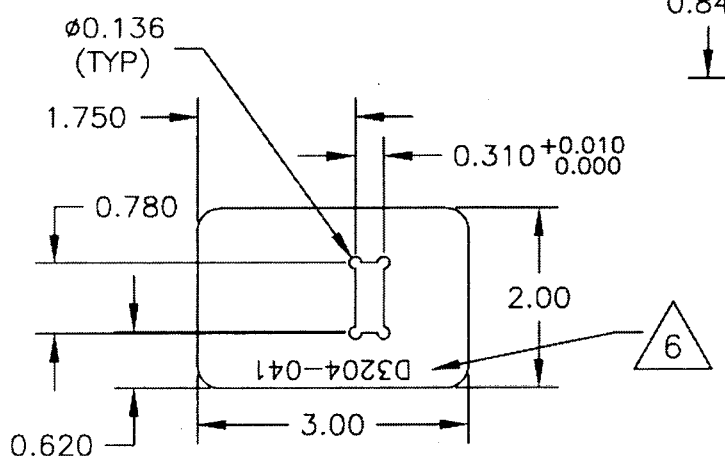




DESIGN TJ	DRAWN BY TJ	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED H	APPROVED H	DRAWING NO. D3204	REV. A SHEET 3 OF 3
DATE 04.01.27		TITLE RELEASE PEDAL ASSEMBLY	SCALE NTS

RELEASED  
04 01 30

w/057547



Copyright © 2004 by DART AEROSPACE LTD

THIS DOCUMENT IS PRIVATE AND CONFIDENTIAL AND IS SUPPLIED ON THE EXPRESS CONDITION THAT IT IS NOT TO BE USED FOR ANY PURPOSE OR COPIED OR COMMUNICATED TO ANY OTHER PERSON WITHOUT WRITTEN PERMISSION FROM DART AEROSPACE LTD.



# What is Waste

An activity or output that ***adds cost but does not add value*** as perceived by the end-use customer.

**Elimination of waste** - activities that utilize resources but do not create value must be eliminated. This is an ongoing hunt! Ideally it will involve all employees.

If you could explain to your customer what ***every step of*** your operation cost, are there any steps your customer would not be willing to pay for?

- scrap
- rework
- looking for: parts, tools, material, people, etc.
- rescheduling
- expedited shipments
- ?????????